Microsemi LAWRENCE

TECHNICAL DATA

NPN POWER SILICON TRANSISTOR

Qualified per MIL-PRF-19500/369

Devices	*Qualified Level*
2N3441	**JANTX**

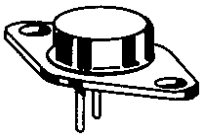
MAXIMUM RATINGS

Ratings	Symbol	Value	Units
Collector-Emitter Voltage	V_{CEO}	140	Vdc
Collector-Base Voltage	V_{CBO}	160	Vdc
Collector-Emitter Voltage	V_{CER}	150	Vdc
Emitter-Base Voltage	V_{EBO}	7.0	Vdc
Base Current	I_B	2.0	Adc
Collector Current	I_C	3.0	Adc
Total Power Dissipation @ $T_A = +25^0C$ (1) @ $T_C = +25^0C$ (2)	P_T	3.0 25	W W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200	^0C

THERMAL CHARACTERISTICS

Characteristics	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Case Junction-to-Ambient	$R_{\theta JC}$ $R_{\theta JA}$	7.0 58.5	$^0C/W$ $^0C/W$

1) Derate linearly @ 17.1 mW/^{0}C for $T_A > +25^0C$
2) Derate linearly @ 143 mW/^{0}C for $T_C > +25^0C$



TO-66* (TO-213AA)

*See Appendix A for Package Outline

ELECTRICAL CHARACTERISTICS ($T_C = 25^0C$ unless otherwise noted)

Characteristics	Symbol	Min.	Max.	Unit
OFF CHARACTERISTICS				
Collector-Emitter Voltage I_C = 100 mAdc	$V_{(BR)CEO}$	140		Vdc
Collector-Emitter Breakdown Voltage I_C = 100 mAdc, R_{BE} = 100 Ω	$V_{(BR)CER}$	150		Vdc
Collector-Emitter Breakdown Voltage I_C = 100 mAdc, V_{BE} = -1.5 Vdc	$V_{(BR)CEX}$	160		Vdc
Collector-Base Cutoff Current V_{CB} = 140 Vdc, V_{BE} = -1.5 Vdc	I_{CEX}		1.0	mAdc
Emitter-Base Cutoff Current V_{EB} = 7.0 Vdc	I_{EBO}		1.0	mAdc

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS (3)				
Forward-Current Transfer Ratio I_C = 50 mAdc, V_{CE} = 4.0 Vdc I_C = 0.5 Adc, V_{CE} = 4.0 Vdc I_C = 1.0 Adc, V_{CE} = 4.0 Vdc	h_{FE}	50 25 10	100	
Collector-Emitter Saturation Voltage I_C = 0.5 Adc, I_B = 50 mAdc	$V_{CE(sat)}$		1.0	Vdc
Base-Emitter Voltage I_C = 0.5 Adc, V_{CE} = 4.0 Vdc	$V_{BE(on)}$		1.7	Vdc
DYNAMIC CHARACTERISTICS				
Magnitude of Common Emitter Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 0.5 Adc, V_{CE} = 4.0 Vdc, f = 100 kHz	$\lvert h_{fe} \rvert$	4.0	40	
Small-Signal Short-Circuit Forward Current Transfer Ratio I_C = 0.5 Adc, V_{CE} = 4.0 Vdc	h_{fe}	15	100	
Output Capacitance V_{CB} = 10 Vdc, I_E = 0, 100 kHz ≤ f ≤ 1.0 MHz	C_{obo}		300	pF
SWITCHING CHARACTERISTICS				
Turn-On Time V_{CC} = 30 Vdc; I_C = 0.5 Adc; I_B = 50 mAdc	t_{on}		8.0	µs
Turn-Off Time V_{CC} = 30 Vdc; I_C = 0.5 Adc; I_B = -I_B = 50 mAdc	t_{off}		15	µs

SAFE OPERATING AREA

DC Tests

T_C = +25^{0}C, 1 Cycle, t = 1.0 s

Test 1

V_{CE} = 8.33 Vdc, I_C = 3.0 Adc

Test 2

V_{CE} = 30 Vdc, I_C = 833 mAdc

Test 3

V_{CE} = 140 Vdc, I_C = 178.5 mAdc

(3) Pulse Test: Pulse Width = 300µs, Duty Cycle ≤ 2.0%.